

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

Please amend the claims as follows:

1. (Currently Amended) A seal ring comprising:

a first seal portion which seals a sidewall surface of an annular groove on an unsealed fluid side of a shaft, the annular groove being provided in one of two members that are concentrically assembled so as to be relatively rotatable; and

a second seal portion which seals a surface of the other of the two members, an annular interspace between the two members being sealed by the first and second seal portions,

a ring body with a separation portion separated in one place in a circumferential direction to include a first end part and a second end part,

said first seal portion being provided with linear contact portions which come into linear contact with the sidewall surface of the annular groove on the unsealed

Serial No.: 10/522,385
Atty Docket No.: P70376US0

fluid side, so as to extend continuously over a whole circumference of the seal ring from one side of said separation portion to the other side thereof, and

 said linear contact portion which is provided on one side of said separation portion, and said linear contact portion which is provided on the other side of said separation portion being located at a distance in a radial direction of the seal ring so that an inner circumferential surface of the first end part on one side of the separation portion comes into contact with an outer circumferential surface of the second end part on the other side of the separation portion and said linear contact portions having a narrower width in the radial direction than adjacent parts of the ring body to control a quantity of leakage from a sealed fluid side to the unsealed fluid side of the shaft.

2. (Currently Amended) The seal ring as defined in claim 1, wherein a first portion of said linear contact portion is provided on one side of said separation portion; and a second portion of said linear contact portion is provided on the other side of said separation portion and said first and second portions have regions which are placed one over the other when said linear contact portions are projected in the radial direction.

3. (Previously Presented) The seal ring as defined in claim 1, wherein a quantity of leakage is adjusted by a size of a sectional area of a section of a space in the radial direction, the space being formed by said linear contact portion provided on one side of said separation portion, said linear contact portion provided on the other side of said separation portion, a part of the ring body lying between said linear contact portion provided on one side and said linear contact portion provided on the other side, and the sidewall surface of the annular groove is on the unsealed fluid side.

4. (Previously Presented) The seal ring as defined in claim 1, wherein said linear contact portions define protruding portions which protrude from a side surface of the ring body, toward the sidewall surface of the annular groove on the unsealed fluid side.

5. (Previously Presented) The seal ring as defined in claim 1, wherein said linear contact portion provided on one side of said separation portion is located nearer a side of said other member than said linear contact portion provided on the other side of said separation portion.

6. (Previously Presented) The seal ring as defined in claim 5, wherein on the other member side of the ring body, the separation end part of said one side which is provided with said linear contact portion is provided with a first circularly-arcuate protrusive part which protrudes in the circumferential direction, while the separation end part of said other side is provided with a first circularly-arcuate recessed part which is fitted with said first circularly-arcuate protrusive part, and
said first circularly-arcuate protrusive part is provided with a second circularly-arcuate part which protrudes in the circumferential direction, while said first circularly-arcuate recessed part is provided with a second circularly-arcuate recessed part which is fitted with said second circularly-arcuate protrusive part.

7. (Previously Presented) The seal ring defined in claim 6, wherein one of respective fitting surfaces at which said second circularly-arcuate protrusive part and second circularly-arcuate recessed part are fitted is provided with a protrusion which comes into linear contact with the other fitting surface.

8. (Previously Presented) The seal ring as defined in claim 1, wherein the separation end part of said one side of said separation portion is provided with a circularly-arcuate protrusive part which protrudes in the circumferential direction, while the separation end part of said other side of said separation portion is provided with a circularly-arcuate recessed part which is fitted with said circularly-arcuate protrusive part, and

one of respective fitting surfaces at which said circularly-arcuate protrusive part and said circularly-arcuate recessed part are fitted is provided with a protrusion which comes into linear contact with the other fitting surface.

9. (Previously Presented) The seal ring as defined in claim 8, wherein the fitting surfaces are surfaces which are radially spaced from an axis of said seal ring, and which extend in the circumferential direction.

10. (Previously Presented) The seal ring as defined in claim 1, wherein said linear contact portions include:

a first linear contact portion which is extended continuously from one side of said separation portion to the other side thereof, and which comes into linear contact with the sidewall surface of the annular groove on the unsealed fluid side; and

a second linear contact portion which lies nearer a groove bottom side of the annular groove than said first linear contact portion, which is extended continuously from one side of said separation portion to the other side thereof, and which comes into linear contact with the sidewall surface of the annular groove on the unsealed fluid side,

said linear contact portion provided on one side of said separation portion is said first linear contact portion, while said linear contact portion provided on the other side of said separation portion is said second linear contact portion.

11. (New) A seal ring comprising:

a first seal portion which seals a sidewall surface of an annular groove on an unsealed fluid side of a shaft, the annular groove being provided in one of two members that are concentrically assembled so as to be relatively rotatable; and

a second seal portion which seals a surface of the other of the two members,

an annular interspace between the two members being sealed by the first and second seal portions,

a ring body with a separation portion separated in one place in a circumferential direction to include a first end part and a second end part,

said first seal portion being provided with linear contact portions which come into linear contact with the sidewall surface of the annular groove on the unsealed fluid side, so as to extend continuously over a whole circumference of the seal ring from one side of said separation portion to the other side thereof,

said first and second end parts of the ring body having abutting parts which abut each other in a radial direction of the seal ring,

said linear contact portions having adjacent parts one of which is provided on said abutting part of said first end of the ring body and the other of which is provided on said abutting part of said second end part of the ring body,

said adjacent parts being located at a distance in the radial direction of the seal ring so that a gap is formed therebetween, and

a quantity of leakage from a sealed fluid side to the unsealed fluid side of the shaft being controlled by a space defined by said abutting parts, said adjacent parts, and the sidewall surface of the annular groove.

12. (New) The seal ring as defined in claim 11, wherein a first portion of said linear contact portion is provided on one side of said separation portion, and a second portion of said linear contact portion is provided on the other side of said separation portion and said first and second portions have regions which are placed one over the other when said linear contact portions are projected in the radial direction.

13. (New) The seal ring as defined in claim 11, wherein a quantity of leakage is adjusted by a size of a sectional area of a section of a space in the radial direction, the space being formed by said linear contact portion provided on one side of said separation portion, said linear contact portion provided on the other side of said separation portion, a part of the ring body lying between said linear contact portion provided on one side and said linear contact portion provided on the other side, and the sidewall surface of the annular groove is on the unsealed fluid side.

14. (New) The seal ring as defined in claim 11, wherein said linear contact portions define protruding portions which protrude from a side surface of the ring body, toward the sidewall surface of the annular groove on the unsealed fluid side.

15. (New) The seal ring as defined in claim 11, wherein said linear contact portion provided on one side of said separation portion is located nearer a side of said other member than said linear contact portion provided on the other side of said separation portion.

16. (New) The seal ring as defined in claim 15, wherein on the other member side of the ring body, the separation end part of said one side which is provided with said linear contact portion is provided with a first circularly-arcuate protrusive part which protrudes in the circumferential direction, while the separation end part of said other side is provided with a first circularly-arcuate recessed part which is fitted with said first circularly-arcuate protrusive part, and

said first circularly-arcuate protrusive part is provided with a second circularly-arcuate part which protrudes in the circumferential direction, while said first

circularly-arcuate recessed part is provided with a second circularly-arcuate recessed part which is fitted with said second circularly-arcuate protrusive part.

17. (New) The seal ring defined in claim 16, wherein one of respective fitting surfaces at which said second circularly-arcuate protrusive part and second circularly-arcuate recessed part are fitted is provided with a protrusion which comes into linear contact with the other fitting surface.

18. (New) The seal ring as defined in claim 11, wherein the separation end part of said one side of said separation portion is provided with a circularly-arcuate protrusive part which protrudes in the circumferential direction, while the separation end part of said other side of said separation portion is provided with a circularly-arcuate recessed part which is fitted with said circularly-arcuate protrusive part, and one of respective fitting surfaces at which said circularly-arcuate protrusive part and said circularly-arcuate recessed part are fitted is provided with a protrusion which comes into linear contact with the other fitting surface.

19. (New) The seal ring as defined in claim 18, wherein the fitting surfaces are surfaces which are radially spaced from an axis of said seal ring, and which extend in the circumferential direction.

20. (New) The seal ring as defined in claim 11, wherein said linear contact portions include:

a first linear contact portion which is extended continuously from one side of said separation portion to the other side thereof, and which comes into linear contact with the sidewall surface of the annular groove on the unsealed fluid side; and

a second linear contact portion which lies nearer a groove bottom side of the annular groove than said first linear contact portion, which is extended continuously from one side of said separation portion to the other side thereof, and which comes into linear contact with the sidewall surface of the annular groove on the unsealed fluid side,

said linear contact portion provided on one side of said separation portion is said first linear contact portion, while said linear contact portion provided on the other side of said separation portion is said second linear contact portion.